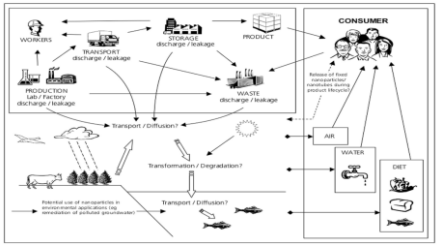
LICARA NANOSCAN

A tool for the self-assessment of benefits and risks of nanoproducts

Wouter Fransman

TNO innovation for life

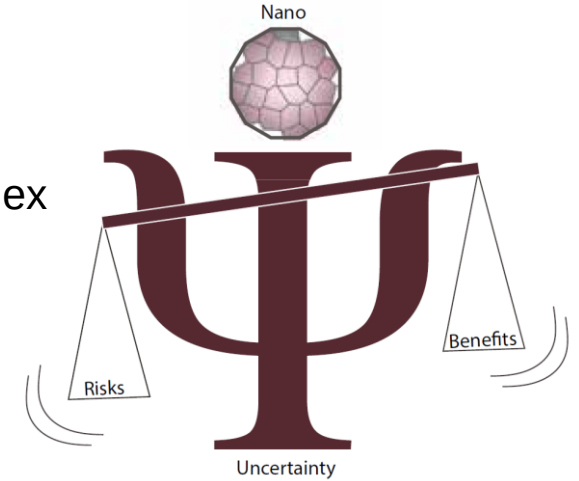
LICARA PROJECT



- **Life Cycle Approach** and human **Risk Assessment**, product stewardship and stakeholder risk/benefit communication of nanomaterials
- **Aims** to develop an approach for SMEs to assess over the life cycle
  - the human and environment risks
  - and the economic, environmental and social opportunities.
- **Deliverables**
  - Guidelines
  - Case studies with in-depth assessments
  - Framework and first version of a tool LICARA nanoSCAN

PRESENT SITUATION ON NANO TECHNOLOGY DEVELOPMENT WITHIN SME'S

- Nano products provide benefits and business opportunities
- However, the possibility of human and environmental risks may spoil the party
- It is (too) difficult and costly to assess these risks
  - Risk Assessment and Life Cycle Assessment are complex and costly to perform
  - data are scarce and if available highly uncertain.
  - it is difficult to "repair" data gaps

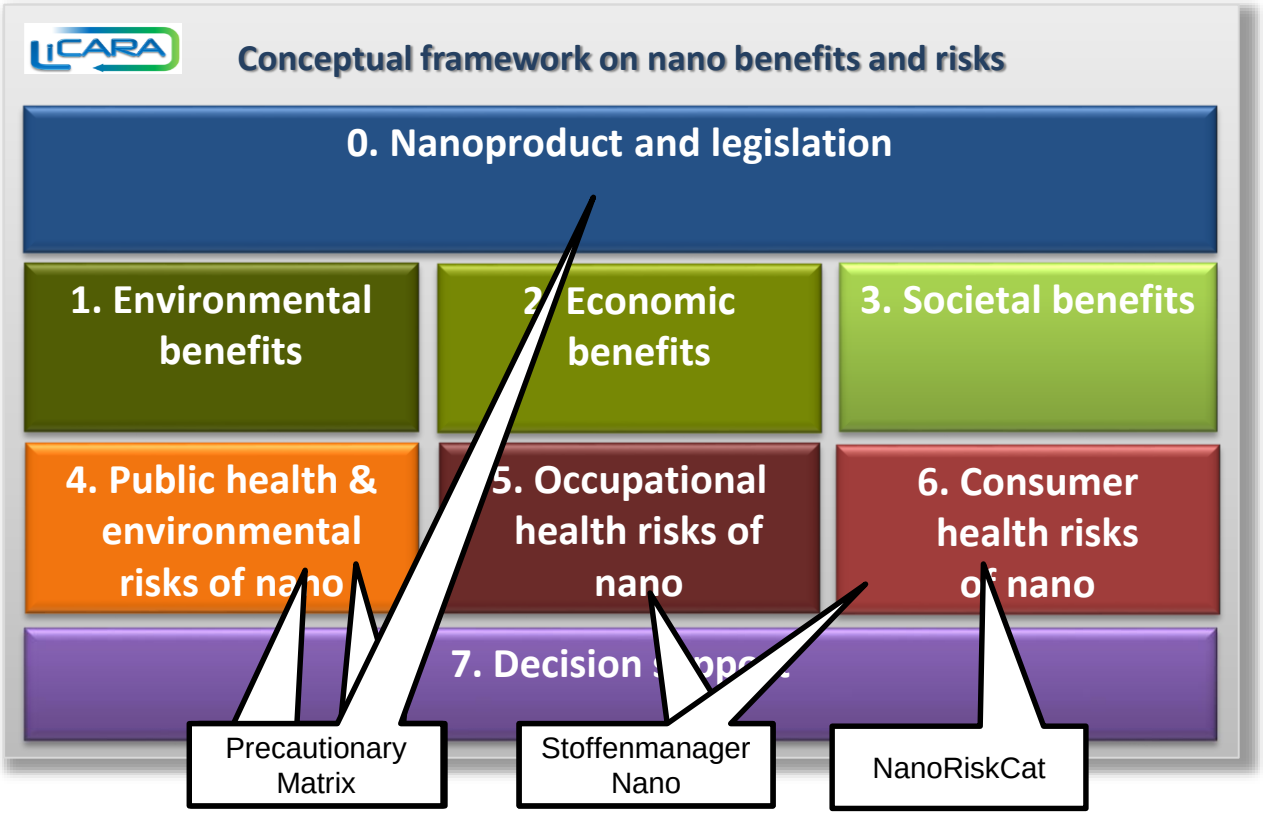


NEED TO SUPPORT SME'S ON DECISION MAKING IN UNCERTAINTY ON NANO PRODUCT DEVELOPMENT

- Including both benefits and risks
- Translating present available scientific knowledge into understandable information
- Tapping on specific know-how of SMEs
- To sketch the pros and cons of a nanoproduct in relation to a conventional product and over the full life cycle

NEED TO SUPPORT SME'S ON DECISION MAKING IN UNCERTAINTY ON NANO PRODUCT DEVELOPMENT

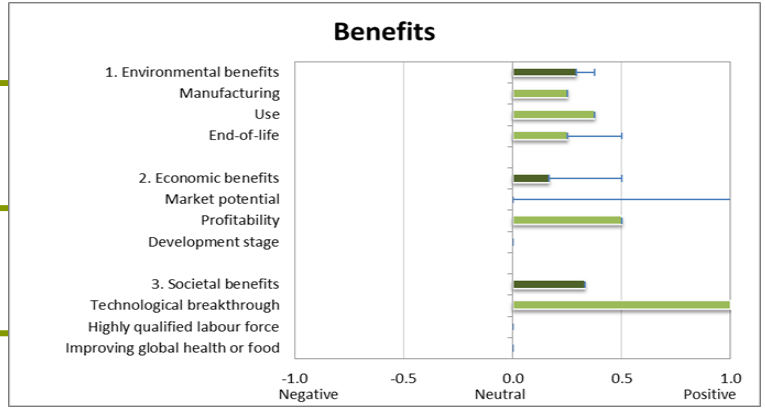
- Qualitative / semi-quantitative giving the fact that little quantitative data is available with high uncertainties
- Using existing tools
- Doing it yourself in a modular approach
- Next to guidelines a simple first version of a tool LICARA nanoSCAN


Conceptual framework on nano benefits and risks
0. Nanoproduct and legislation
1. Environmental benefits
2. Economic benefits
3. Societal benefits
4. Public health & environmental risks of nano
5. Occupational health risks of nano
6. Consumer health risks of nano
7. Decision support
Precautionary Matrix
Stoffenmanager Nano
NanoRiskCat

nanoSCAN

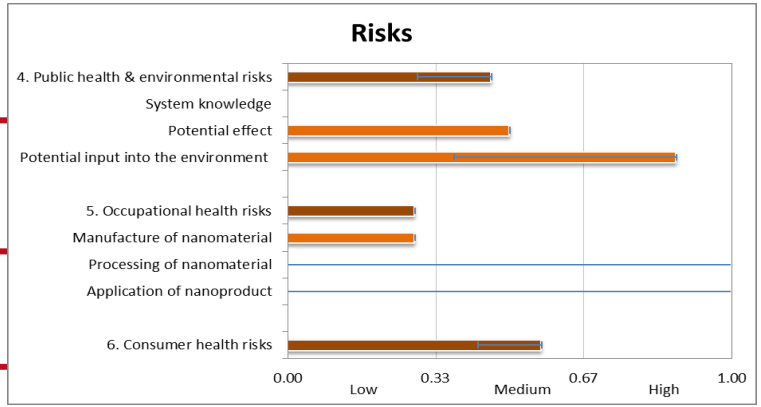
Benefits

- Environmental
- Economic
- Societal

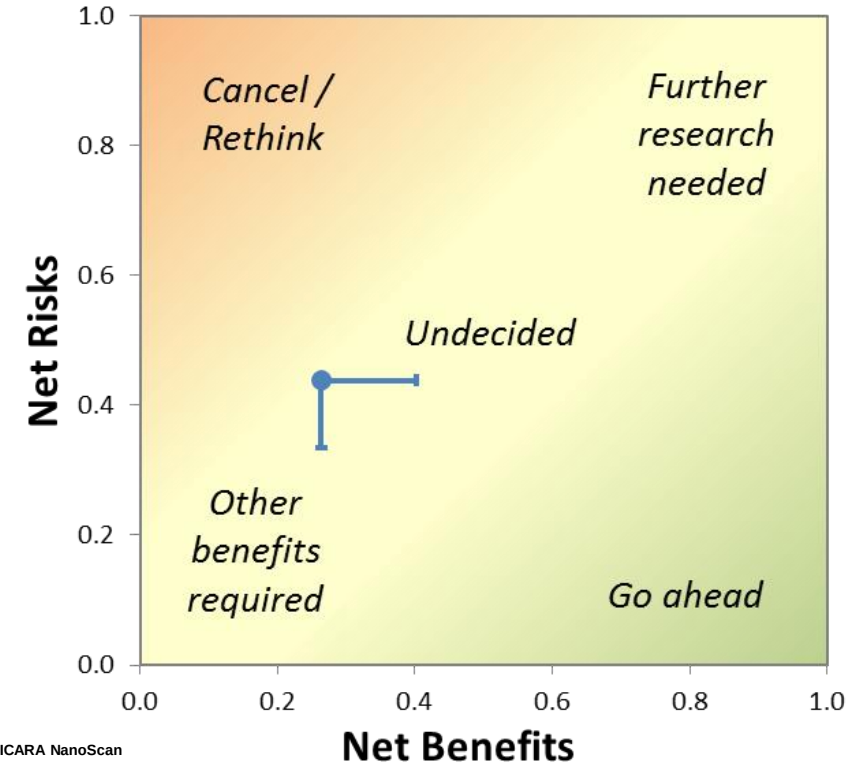


Risks

- Public health & environmental
- Occupational health
- Consumer health



WEIGHED RESULTS



Example: scratch and corrosion resistant nano silica coating

APPLICATIONS OF LICARA NANOSCAN

Competition (opportunity, performance)
- Compare products against new developments/product substitution by competitors
- Examine new technologies from competitors and whether or not to invest in such technology

Market / client (benefit, risk)
- Identify customers' benefits of using nanoproducts
- Support customers in safe and responsible nanoproduct handling

Suppliers (resource analysis)
- Check which nanoproducts perform best and have the lowest occupational health risks

Reflection (internal risk analysis)
- Verify whether risks are at the very least counter-balanced by benefits

SCREENSHOTS OF LICARA NANOSCAN

IMPLEMENTATION IN SUN DECISION SUPPORT SYSTEM

FINAL

- Plea… …ct us
- We … …kov (e… m…

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